

(19) World Intellectual Property Organization International Bureau



Rec'd PCT/PTO 11 JAN 2005

(43) International Publication Date
22 January 2004 (22.01.2004)

PCT

(10) International Publication Number
WO 2004/007985 A1

(51) International Patent Classification⁷: F16D 51/20,
65/14

(21) International Application Number:
PCT/IN2003/000221

(22) International Filing Date: 18 June 2003 (18.06.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
515/MAS/2002 11 July 2002 (11.07.2002) IN

(71) Applicant (for all designated States except US): BRAKES INDIA LIMITED [IN/IN]; Brakes India Limited, M.T.H. Road, Padi, Chennai 600 050, Tamil Nadu (IN).

(72) Inventors; and

(75) Inventors/Applicants (for US only): RAAJHA, Paravasaraju [IN/IN]; Engg. R & D Department, Brakes India Limited, M.T.H. Road, Padi, Chennai 600 050, Tamil Nadu (IN). LAKSHMI NARAYANAN, Vaidyanathan [IN/IN]; Engg. R & D Department, Brakes India Limited, M.T.H. Road, Padi, Chennai 600 050, Tamil Nadu (IN).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian

CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

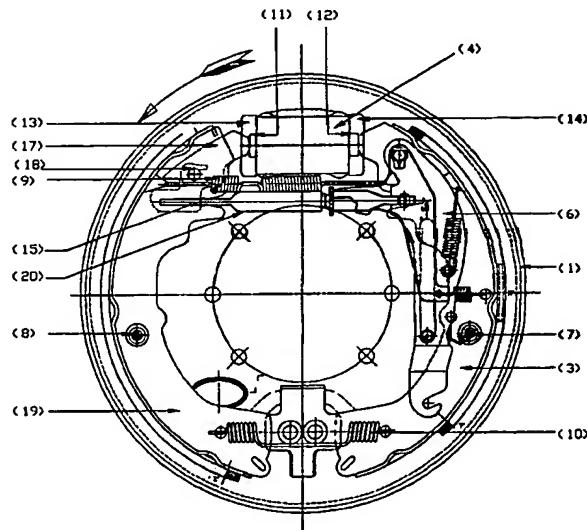
(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian

[Continued on next page]

(54) Title: HIGH PERFORMANCE DRUM BRAKE ASSEMBLY FOR AUTOMOTIVE BRAKING SYSTEM



WO 2004/007985 A1

(57) Abstract: A High performance drum brake assembly design is developed which can substantially increase the brake output torque for a given hydraulic input pressure or reduce the required pipeline pressure to realize the current rated torque. The brake assembly has a new lever (17) pivoted on the leading shoe (19) web with one end resting on the wheel cylinder piston (11) and the other end on the strut assembly (15). This lever touches the piston instead of the leading shoe web and receives input from the pressurized wheel cylinder. The lever rotates about its pivot point (18) and pushes the strut assembly. The trailing shoe (3) receives two inputs, one from the wheel cylinder and the other from the strut assembly. The wheel cylinder input and the strut reaction force together acting on the pivot, results in almost twice the force acting on the leading shoe.

Rec'd PCT/PN 10/521043
17/11/2005

WO 2004/007985 A1

patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations of inventorship (Rule 4.17(iv)) for US only

Published:

- with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.